CLAIMS

1. A decorative item comprising:

a basis material having a hardened layer extending from a surface thereof to an arbitrary depth wherein a solute atom is diffused so as to form a solid solution; and

at least one hard coating disposed on a surface of the hardened layer of the basis material.

2. The decorative item as claimed in claim 1, wherein the solute atom is at least one atom selected from the group consisting of carbon, nitrogen and oxygen atoms.

3. The decorative item as claimed in claim 1, wherein the basis material is constituted of stainless steel, titanium or a titanium alloy.

4. The decorative item as claimed in any of claims 1 to 3, wherein the hard coating and the basis material at its surface exhibit respective tones which are different from each other.

5. The decorative item as claimed in any of claims 1 to 4, wherein the hard coating has a surface hardness greater than that of the basis material.

6. The decorative item as claimed in any of claims 1 to 5, wherein the hard coating is constituted of a nitride, carbide, oxide, nitrido-carbide or nitrido-carbido-oxide of an element belonging to Group 4a, 5a or 6a of the periodic table.

7. The decorative item as claimed in any of claims 1 to 5, wherein the hard coating is a hard coating of carbon.

8. The decorative item as claimed in claim 7, further comprising an intermediate layer disposed between the hard coating of carbon and a surface of the hardened layer of the basis material.

9. The decorative item as claimed in claim 8, wherein the intermediate layer comprises a lower layer of Ti or Cr disposed on the hardened layer surface of the basis material and an upper layer of Si or Ge disposed on a surface of the lower layer.

10. The decorative item as claimed in any of claims 1 to 7, wherein at least two hard coatings are formed on the hardened layer surface of the basis material.

11. The decorative item as claimed in any of claims 1 to 7, wherein at least two hard coatings are laminated on the hardened layer surface of the basis material.

12. The decorative item as claimed in any of claims 1 to 10, wherein the hard coating is disposed on portion of the hardened layer surface of the basis material.

13. The decorative item as claimed in any of claims 1 to 12, further comprising a gold alloy coating disposed on a surface of the hard coating.

14. The decorative item as claimed in claim 13, wherein the gold alloy coating is constituted of an alloy of gold and at least one metal selected from the group consisting of Al, Si, V, Cr, Ti, Fe, Co, Ni, Cu, Zn, Ge, Y, Zr, Nb, Mo, Ru, Rh, Pd, Ag, Cd, In, Sn, Hf, Ta, W, Ir and Pt.

15. The decorative item as claimed in any of claims 1 to 14, which is an exterior part of timepiece.

16. A process for producing a decorative item, comprising the steps of:

providing a basis material of stainless steel having a hardened layer extending from a surface thereof to an arbitrary depth wherein a solute atom is diffused so as to form a solid solution; and

forming at least one hard coating on a surface of the hardened layer of the basis material.

17. The process as claimed in claim 16, wherein the solute atom is at least one atom selected from the group consisting of carbon, nitrogen and oxygen atoms.

18. The process as claimed in claim 16 or 17, wherein the decorative item is an exterior part of timepiece.

19. An exterior part of timepiece, comprising a stainless steel having at its surface a carburized layer wherein carbon is diffused so as to form a solid solution,

wherein the carburized layer has a polished surface whose Vickers hardness (HV) is 500 or more.

20. The exterior part of timepiece as claimed in claim 19, wherein the polished surface is specular.

21. An exterior part of timepiece, comprising a stainless steel having at its surface a carburized layer wherein carbon is diffused so as to form a solid solution,

wherein the carburized layer has a machined surface.

22. The exterior part of timepiece as claimed in claim 21, wherein the machined surface has a Vickers hardness (HV) of 500 or more.

23. The exterior part of timepiece as claimed in claim 21 or 22, which is one produced by machining a surface of an exterior part of timepiece and thereafter carburizing the machined surface.

24. A wristwatch band comprising a plurality of band pieces of stainless steel connected to each other,

each of the band pieces having at its surface a carburized layer wherein carbon is diffused so as to form a solid solution,

wherein the carburized layer has a polished surface whose Vickers hardness (HV) is 500 or more.

25. A wristwatch band comprising a plurality of band pieces of stainless steel connected to each other,

each of the band pieces having at its surface a carburized layer wherein carbon is diffused so as to form a solid solution,

wherein the carburized layer has a machined surface.

26. The wristwatch band as claimed in claim 24 or 25, wherein the band pieces are connected to each other by means of connecting parts of stainless steel,

each of the connecting parts having at at least portion of its surface a carburized layer wherein carbon is diffused so as to form a solid solution.

27. The wristwatch band as claimed in claim 24 or 25, produced by connecting the band pieces to each other by means of connecting parts, carburizing the band pieces and the connecting parts, and thereafter polishing surfaces of the band pieces.

28. The wristwatch band as claimed in claim 27, which further comprises connecting parts having no carburized layer.

29. A process for producing a wristwatch band, comprising the steps of:

connecting a plurality of band pieces of stainless steel to each other by means of a plurality of connecting parts of stainless steel;

fluorinating the band pieces and the connecting parts in a fluorogas atmosphere at 400 to 500°C;

gas carburizing the fluorinated band pieces and connecting parts in a carburizing gas atmosphere containing carbon monoxide at 400 to 500°C;

pickling the carburized band pieces and connecting parts, followed by rinsing; and

subjecting surfaces of the band pieces to barrel polishing.

30. The process as claimed in claim 29, which further comprises buffing the band piece surfaces having undergone barrel polishing.

31. The process as claimed in claim 29 or 30, which further comprises machining surfaces of the band pieces connected by means of the connecting parts prior to the fluorination to obtain a wristwatch band having machined surfaces.

32. A process for producing a wristwatch band, comprising the steps of:

fluorinating a plurality of band pieces of stainless steel and a plurality of connecting parts of stainless steel in a fluorogas atmosphere at 250 to 600°C;

gas carburizing the fluorinated band pieces and connecting parts in a carburizing gas atmosphere containing carbon monoxide at 400 to 500°C;

pickling the carburized band pieces and connecting parts, followed by rinsing;

subjecting surfaces of the band pieces to barrel polishing; and

connecting the band pieces by means of the connecting parts.

33. The process as claimed in claim 32, which further comprises buffing the band piece surfaces having undergone barrel polishing.

34. The process as claimed in claim 32 or 33, which further comprises machining surfaces of the plurality of band pieces prior to the fluorination to obtain a wristwatch band having machined surfaces.

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35. A process for producing an exterior part of timepiece other than a wristwatch band, comprising the steps of:

connecting a plurality of pieces of stainless steel to each other by means of a plurality of connecting parts of stainless steel to obtain a base material for a timepiece exterior part of stainless steel other than a wristwatch band;

fluorinating the base material in a fluorogas atmosphere at 250 to 600°C;

gas carburizing the fluorinated base material in a carburizing gas atmosphere containing carbon monoxide at 400 to 500°C;

pickling the carburized base material, followed by rinsing; and

subjecting surfaces of the base material to barrel polishing.

36. The process as claimed in claim 35, which further comprises buffing the base material surfaces having undergone barrel polishing.

37. The process as claimed in claim 35 or 36, which further comprises machining surfaces of the base material prior to the fluorination to obtain an

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exterior part of timepiece ~~other than wristwatch band~~ having machined surfaces.

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38. An exterior part of timepiece, comprising a metal, said metal having at its surface a deformed layer containing a fibrous structure wherein metal crystal grains are deformed so as to be fibrous, at least the deformed layer having a hardened layer wherein a solute atom is diffused so as to form a solid solution.

39. The exterior part of timepiece as claimed in claim 38, wherein the deformed layer is one formed by application of a physical external force to at least surface of the metal.

40. The exterior part of timepiece as claimed in claim 39, wherein the deformed layer is one formed by application to the metal surface of a physical external force capable of drawing the metal surface substantially unidirectionally.

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41. The exterior part of timepiece ~~as~~ claimed in any ~~of~~ claims ~~38 to 40~~, wherein the deformed layer extends from the metal surface to a depth of 2 to 100 μm.

42. The exterior part of timepiece as claimed in any of claims 38 to 41, wherein the hardened layer extends from a surface of the deformed layer to a depth of 5 to 50 μm.

43. The exterior part of timepiece as claimed in any of claims 38 to 42, wherein the solute atom is at least one atom selected from the group consisting of carbon, nitrogen and oxygen atoms.

44. The exterior part of timepiece as claimed in any of claims 38 to 43, wherein the hardened layer has a specular surface whose Vickers hardness (HV) is 500 or greater.

45. A process for producing an exterior part of timepiece constituted of stainless steel, comprising the steps of:

applying a physical external force to a surface of stainless steel so as for at least the stainless steel surface to have a deformed layer containing a fibrous structure wherein metal crystal grains are deformed so as to be fibrous; and

dissolving a solute atom in a surface of the deformed layer so as to form a solid solution therein,

thereby effecting such a hardening that a hardened layer is formed.

46. The process as claimed in claim 45, wherein the deformed layer is formed by application to the stainless steel surface of a physical external force capable of drawing the stainless steel surface substantially unidirectionally.

47. The process as claimed in claim 45 or 46, wherein the deformed layer is formed by subjecting the stainless steel surface to at least one of polishing and cutting operations whereby a physical external force capable of drawing the stainless steel surface substantially unidirectionally is applied to the stainless steel surface.

48. The process as claimed in any of claims 45 to 47, wherein the deformed layer is formed by subjecting the stainless steel surface to at least one of cutting and grinding operations to form a face of desired shape, and

polishing the face of desired shape to form the deformed layer.

49. The process as claimed in any of claims 45 to 47, wherein the stainless steel surface is subjected to grinding operation to form not only a face of desired shape but also the deformed layer.

50. The process as claimed in claim 48 or 49, wherein the face of desired shape is substantially flat.

51. The process as claimed in claim 48 or 49, wherein the face of desired shape is curved.

52. The process as claimed in any of claims 45 to 51, wherein the deformed layer is so formed as to extend from the stainless steel surface to a depth of 2 to 100 μm.

53. The process as claimed in any of claims 45 to 52, wherein the hardened layer is so formed as to extend from a surface of the deformed layer to a depth of 5 to 50 μm.

54. The process as claimed in any of claims 45 to 53, wherein the solute atom is at least one atom selected from the group consisting of carbon, nitrogen and oxygen atoms.

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55. The process as claimed in any of claims 45 to 54, wherein the hardened layer has a specular surface whose Vickers hardness (HV) is 500 or greater.

56. The process as claimed in any of claims 45 to 55, wherein the deformed layer is formed in a surface of stainless steel of a base material for timepiece exterior part produced by forging capable of realizing a high degree of deformation.

57. The process as claimed in any of claims 45 to 56, wherein the hardening is carried out at a temperature which is close to recrystallization temperature of the stainless steel or below.

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